

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:** Casey, William**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-028260**Date Inspected:** 17-Aug-2012**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1900**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** As noted below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** SAS OBG**Summary of Items Observed:**

Quality Assurance Inspector (QA) Douglas Frey was at the American Bridge/Fluor (ABF) job site at Yerba Buena Island in California between the times noted above in order to monitor Quality Control functions and the in process work being performed by ABF personnel. The following items were observed:

13E PP120-E2.0-FBW1 (Exterior)

This QA Inspector randomly observed the excavation operations of Ultrasonic rejectable indications on the horizontal Complete Joint Penetration (CJP) joint of Seismic Performance Critical Member (SPCM) material at 13E PP120-E2.0-FBW1 on the exterior of the OBG. This QA Inspector observed ABF/JV qualified welder Chris Bowles #9317 performing the Carbon Arc Gouging (CAG) method to remove metal from the material. The welder was observed cleaning up the excavations utilizing a small disc grinder and a de-burring drill. Upon completion of the excavations, Quality Control (QC) Inspector Salvador Merino performed a Magnetic Particle Inspection (MT) of the sites to determine soundness of the metal and observed no indications, QC then measured the dimensions of the excavations for length, width and depth.

This QA Inspector recorded the dimensions of the excavations as:

Y+25mm: 60mm in length, 35mm wide and 20mm deep.

Y+80mm: 90mm in length, 40mm wide and 17mm deep.

Y+410mm: 50mm in length, 40mm wide and 22mm deep.

Y+490mm: 100mm in length, 40mm wide and 24mm deep.

Y+590mm: 90mm in length, 20mm wide and 24mm deep.

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The total length of the weld measured 870mm with the total accumulative length of the excavations of 390mm which exceeded the allowable length by 90mm. The thickness of the member was measured as 30mm with four (4) of five (5) excavations greater than 65% depth of the members thickness. (See photo below). This QA Inspector generated a TL-15 incident report on this date for a critical weld repair.

### 13E PP121-E2.0-FBW1/FBW2 (Exterior)

This QA Inspector randomly observed QC Inspector Bernie Docena on the exterior of the OBG performing Ultrasonic Testing (UT). The QC Inspector was observed scanning from each side of the weld and the scanning pattern as described in D1.5 6.24. The QC Inspector was noted as identifying rejectable indications listed below and the work at this location is ongoing and appeared to be in general conformance with the contract documents and SE-UT-D1.5-CT-100-Revision 4.

FBW1: y+10mm; 700mm long, 5-12mm deep, y+120mm; 110mm long, 6-10mm deep, y+310mm; 65mm long, 4-8mm deep, y+420mm; 30mm long, 4-6mm deep.

FBW2: y+410mm; 60mm long, 11mm deep, y+660mm; 40mm long, 11mm deep, y+1090mm; 30mm long, 9mm deep, y+1100mm; 30mm long, 13mm deep.

13E PP120.5-E2.0-BW1: y+60mm; 30mm long, 5mm deep, y+140mm; 40mm long, 11mm deep, y+220mm, 30mm long, 6mm deep.

### 13E PP121-E2.0-FBW1/FBW2 (Exterior)

This QA Inspector randomly observed ABF/JV Xiao Hua Luo #1291 perform SMAW in the 2G horizontal and 3G vertical positions on the Floor Beam Webs at 13E PP121-2.0-FBW1/FBW2 on the exterior of the OBG. The welder was observed performing multiple pass production welding on the 20mm thick SPCM material with E7018-H4R electrodes drawing amperage of 132 and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1000-Repair. This QA Inspector observed QC Inspector Fred Michels using a Fluke infra-red temperature gauge to verify the preheat temperature of more than 150°F. This QA Inspector performed a verification of the welding parameters and observed 136 amperes on the 3.2mm diameter electrode. The welding appeared to comply with the WPS's and at the end of the shift; the work was in progress and appeared to be in general conformance with the contract specifications. No RWR was required for this first time weld repair.

### Summary of Conversations:

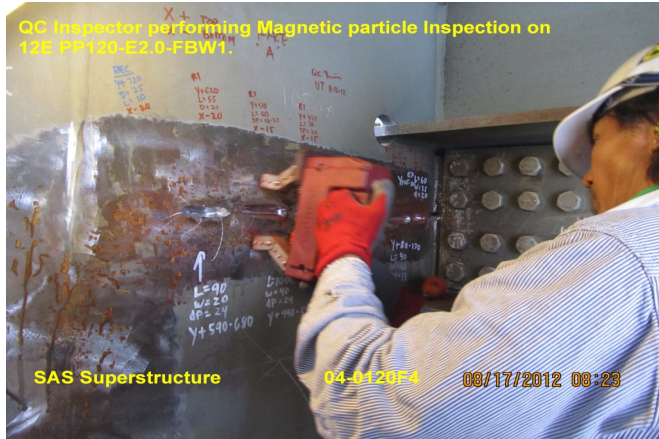
Conversations today were pertinent to the weld locations.

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## Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy 510-385-5910 , who represents the Office of Structural Materials for your project.

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**Inspected By:** Frey,Doug

Quality Assurance Inspector

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**Reviewed By:** Levell,Bill

QA Reviewer